

NOTES:

1. THE DIAMETER OF A MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER SHOULD VARY WITH THE SIZE OF THE SEWER. FOR EIGHT-INCH (8"), TEN-INCH (10"), AND TWELVE-INCH (12"), THE MANHOLE SHALL BE FOUR-FOOT (4') MINIMUM DIAMETER, FOR FIFTEEN-INCH (15"), EIGHTEEN-INCH (18"), TWENTY-ONE-INCH (21"), TWENTY-FOUR-INCH (24") AND TWENTY-SEVEN-INCH (27") SHALL BE FIVE-FOOT (5') MINIMUM DIAMETER; THIRTY-INCH (30") AND THIRTY-SIX-INCH (36") SHALL BE SIX-FOOT (6') MINIMUM DIAMETER. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.

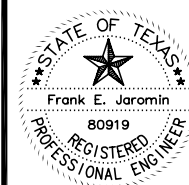
2. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR INCHES (24") ABOVE THE OUTFALL ELEVATION.

3. WHERE PIPES ENTER A MANHOLE THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS.

4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.

5. CONCRETE SHALL BE A MONOLITHIC POUR.

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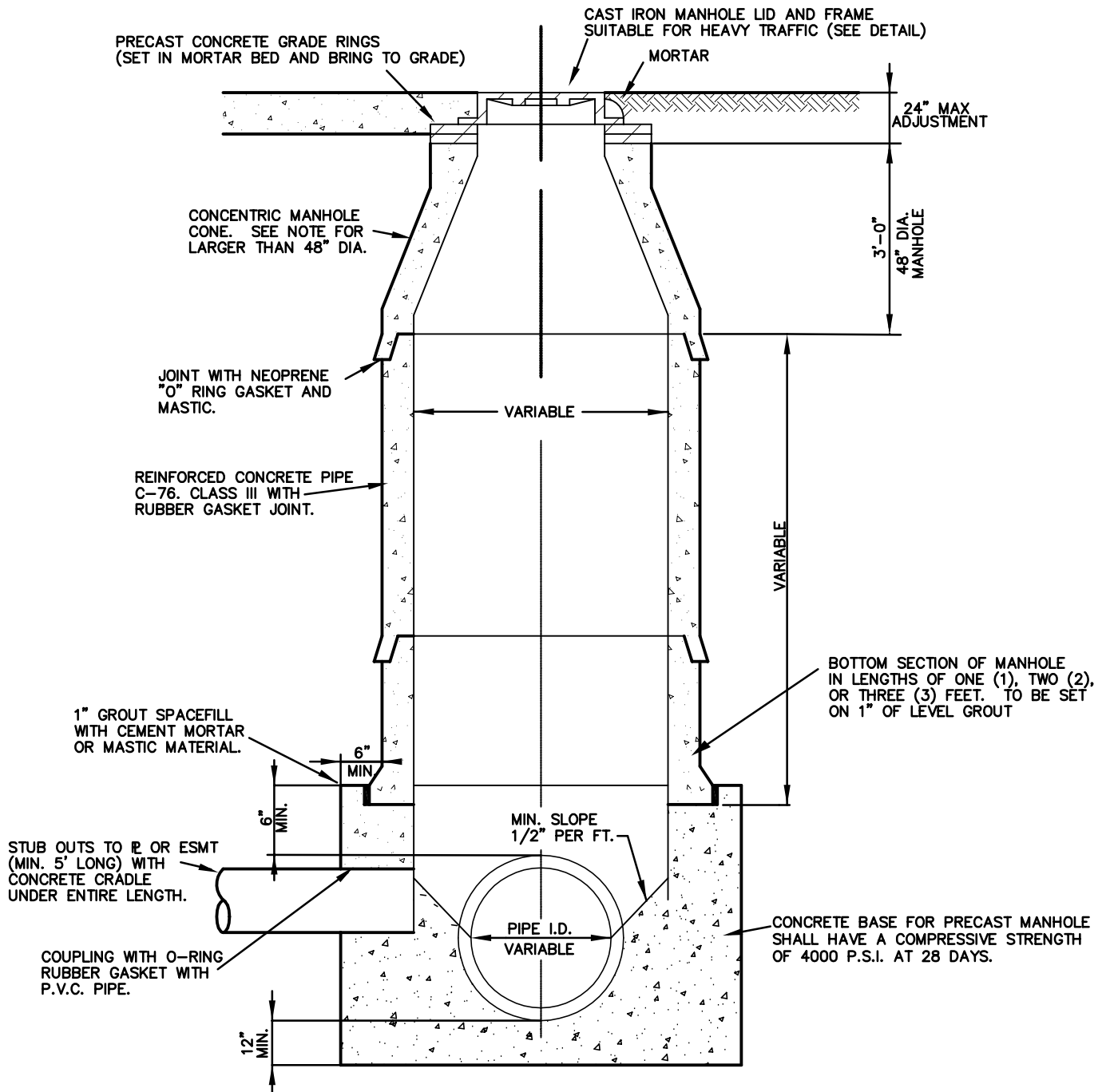


STANDARD CAST-IN-PLACE MANHOLE

CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION DETAILS

DATE: 07/22/03
DRAWN BY: WLW
APPROVED BY: FEJ

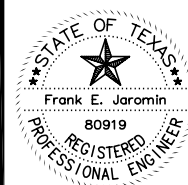
SHEET NO. : S01



NOTES:

1. THE DIAMETER OF A MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER SHOULD VARY WITH THE SIZE OF THE SEWER. FOR EIGHT-INCH (8"), TEN-INCH (10"), AND TWELVE-INCH (12"), THE MANHOLE SHALL BE FOUR-FOOT (4') MINIMUM DIAMETER, FOR FIFTEEN-INCH (15"), EIGHTEEN-INCH (18"), TWENTY-ONE-INCH (21"), TWENTY-FOUR-INCH (24") AND TWENTY-SEVEN-INCH (27") SHALL BE FIVE-FOOT (5') MINIMUM DIAMETER; THIRTY-INCH (30") AND THIRTY-SIX-INCH (36") SHALL BE SIX-FOOT (6') MINIMUM DIAMETER. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.
2. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR INCHES (24") ABOVE THE OUTFALL ELEVATION.
3. WHERE PIPES ENTER A MANHOLE THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.

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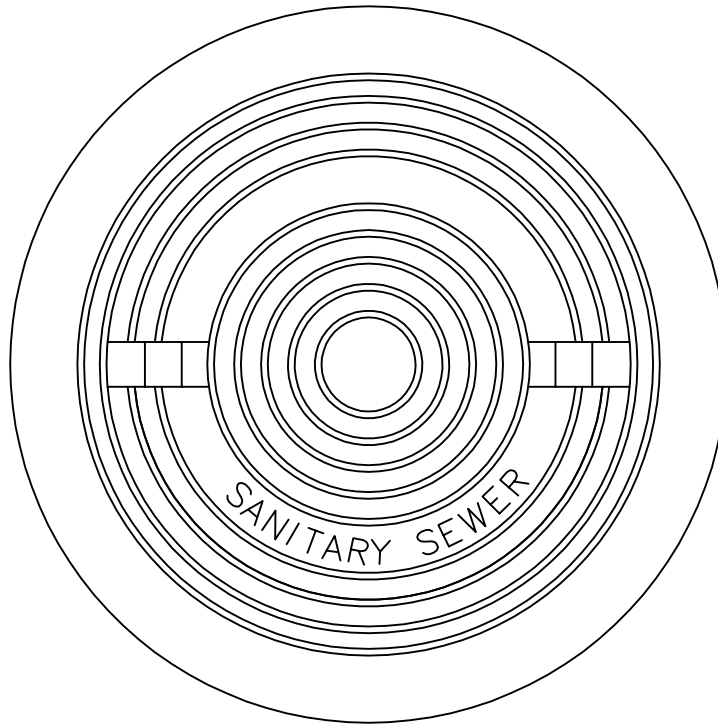


PRECAST CONCRETE PIPE MANHOLE

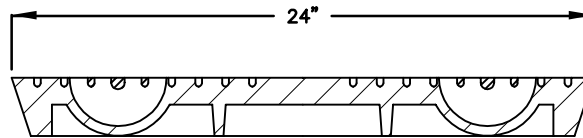
CITY OF FRISCO, TEXAS
**STANDARD CONSTRUCTION
DETAILS**

DATE: 07/25/02
DRAWN BY: HTW
APPROVED BY: FEJ

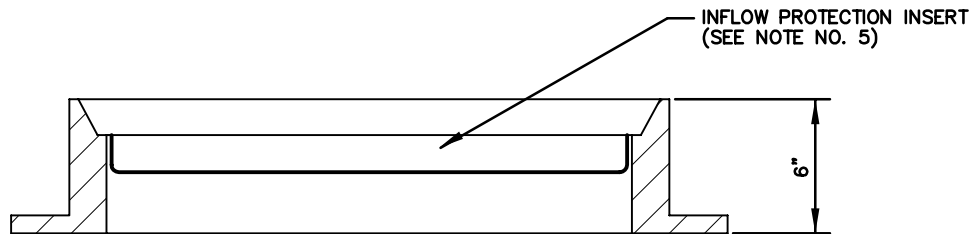
SHEET NO. : S02



ASSEMBLY PLAN VIEW



LID SECTION VIEW

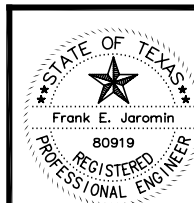


FRAME SECTION VIEW

GENERAL NOTES:

1. MANHOLE LID SHALL BE SOLID AND PROVIDED WITH PICK SLOTS ONLY
2. 24" HEAVY DUTY MANHOLE FRAME AND COVER IS TO BE CASTED 400 LBS WITH A DESIGN STRENGTH OF 4000 PSI.
3. THE HORIZONTAL BEARING SURFACES ARE TO BE MACHINE FINISHED.
4. THE SOLID LID WILL BE PROVIDED WITH MANUFACTURER'S STANDARD LETTERING SHOWING "SANITARY SEWER".
5. INFLOW PROTECTION INSERT, MINIMUM THICKNESS OF ONE-EIGHT INCH (1/8"), MADE OF HDPE MEETING ASTM D 1248 CLASS A, CATEGORY 5, TYPE 111. INSERT SHALL INCLUDE A LIFT STRAP AND VENT HOLE WITH VENT DISK AS MANUFACTURED BY KNUTSON MANHOLE INSERTS OR APPROVED OTHER.

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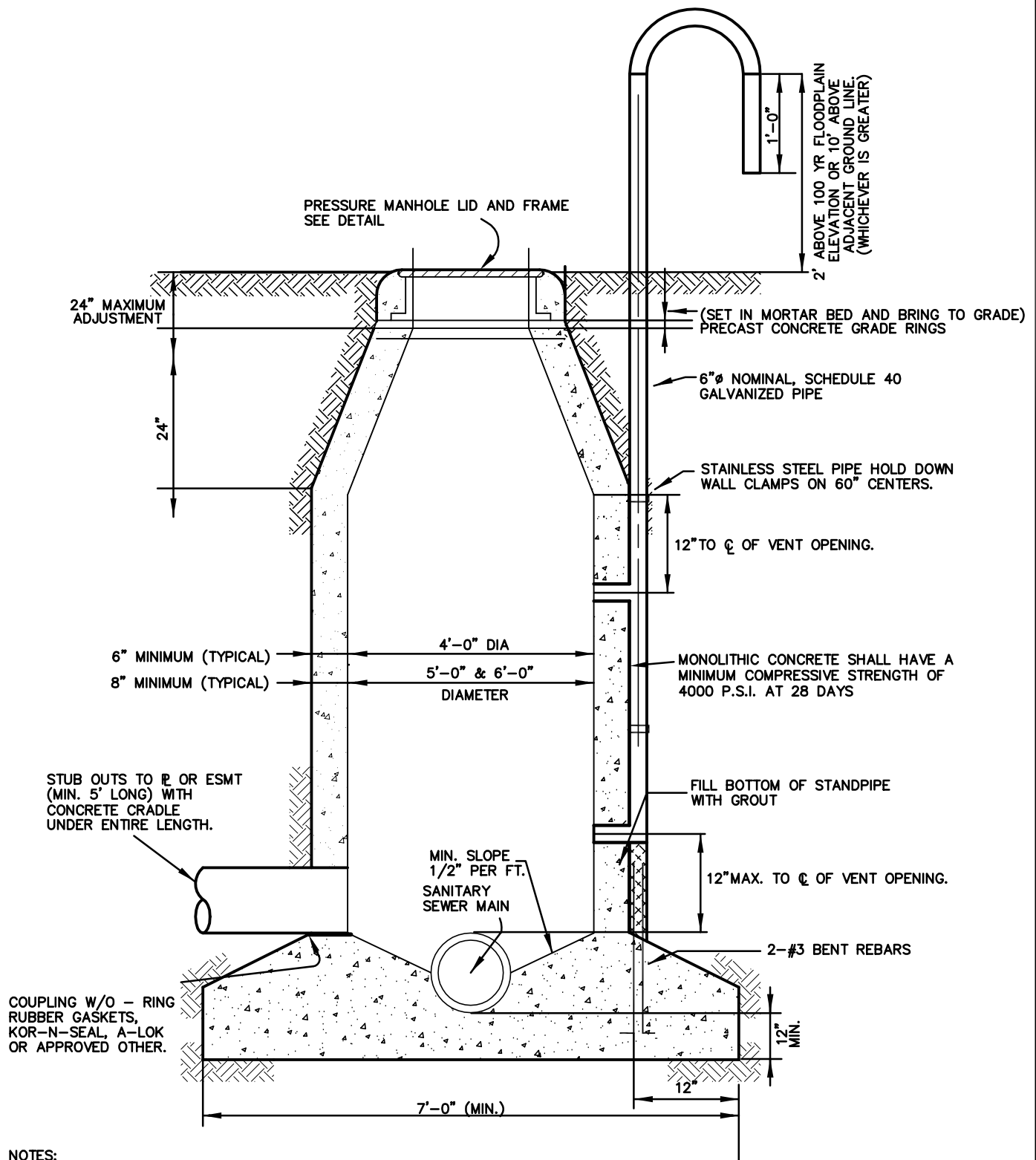


CAST IRON MANHOLE LID AND FRAME

CITY OF FRISCO, TEXAS
**STANDARD CONSTRUCTION
DETAILS**

DATE: 06/27/02
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APPROVED BY: FEJ

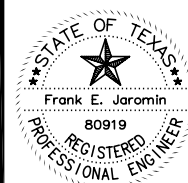
SHEET NO. : S03



NOTES:

1. THE DIAMETER OF A MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER SHOULD VARY WITH THE SIZE OF THE SEWER. FOR EIGHT-INCH (8"), TEN-INCH (10"), AND TWELVE-INCH (12"), THE MANHOLE SHALL BE FOUR-FOOT (4') MINIMUM DIAMETER, FOR FIFTEEN-INCH (15"), EIGHTEEN-INCH (18"), TWENTY-ONE-INCH (21"), TWENTY-FOUR-INCH (24") AND TWENTY-SEVEN-INCH (27") SHALL BE FIVE-FOOT (5') MINIMUM DIAMETER; THIRTY-INCH (30") AND THIRTY-SIX-INCH (36") SHALL BE SIX-FOOT (6') MINIMUM DIAMETER. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.
2. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR INCHES (24") ABOVE THE OUTFALL ELEVATION.
3. WHERE PIPES ENTER A MANHOLE THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
5. CONCRETE SHALL BE A MONOLITHIC POUR.

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VENTED TYPE S MANHOLE

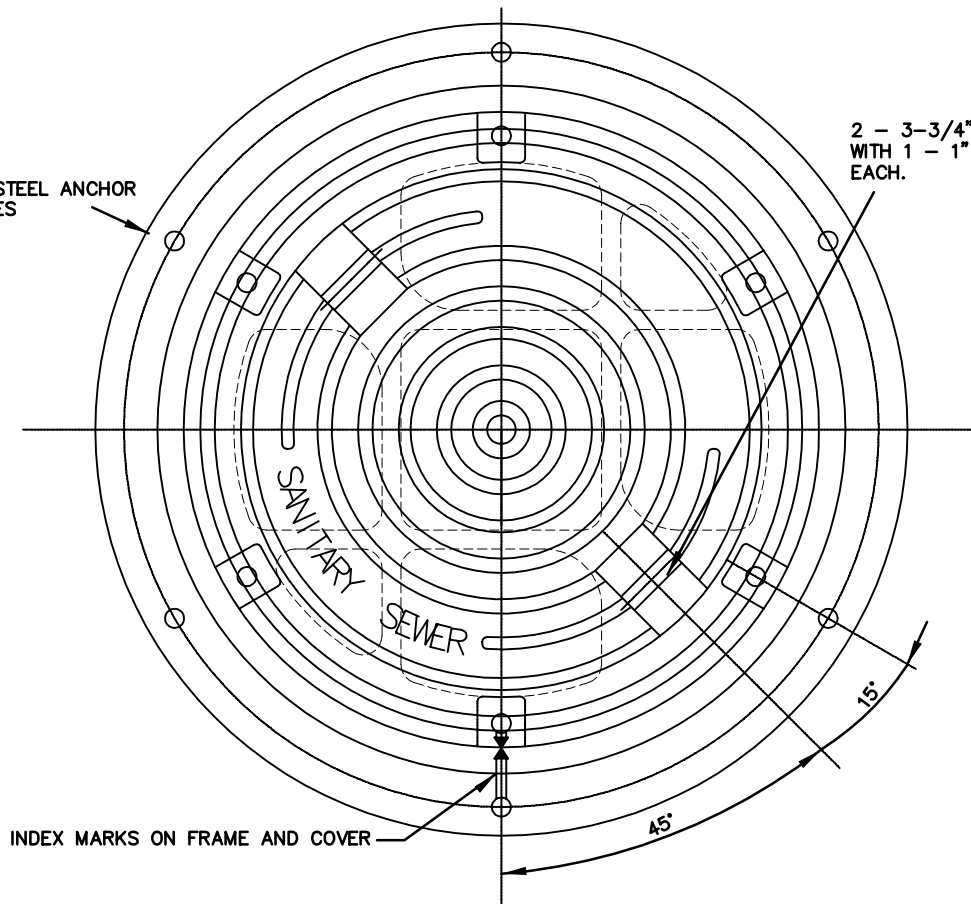
CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS

DATE: 07/22/03
DRAWN BY: HTW
APPROVED BY: FEJ

SHEET NO. : S04

6-1/2" Ø STAINLESS STEEL ANCHOR
BOLTS IN 5/8" Ø HOLES

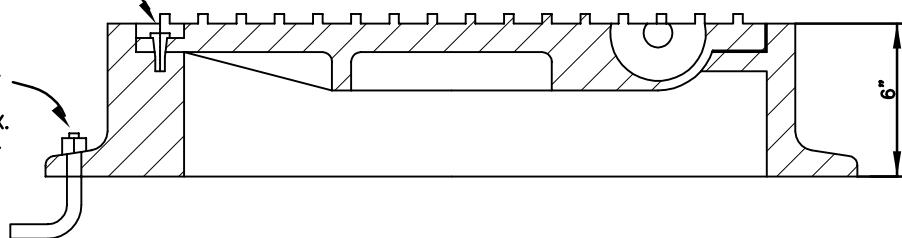
2 - 3-3/4" X 2" PICK SLOTS
WITH 1 - 1" DIA. STEEL ROD
EACH.



ASSEMBLY PLAN VIEW

6-5/8" DIA., 1-1/2"
LONG STAINLESS
STEEL BOLTS.

1/2" Ø X 6" LONG BENT
STAINLESS STEEL
ANCHOR BOLTS W/HEX.
HEAD NUT - 6 REQ'D.



ASSEMBLY CROSS SECTION

GENERAL NOTES:

1. THE HORIZONTAL BEARING SURFACES ARE TO BE MACHINE FINISHED.
2. FOR A SEAL BETWEEN THE RING FRAME AND COVER A 1/4" Ø NEOPRENE "O-RING" GASKET SHALL BE AND INSTALLED BY THE MANUFACTURER. THE LOCATION SHALL BE AS PER THE MANUFACTURER'S STANDARDS BUT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
3. THE SOLID LID WILL BE PROVIDED WITH MANUFACTURER'S STANDARD LETTERING SHOWING "SANITARY SEWER".
4. NOT ALLOWED IN TRAFFIC AREA.

**PRESSURE MANHOLE
LID AND FRAME**

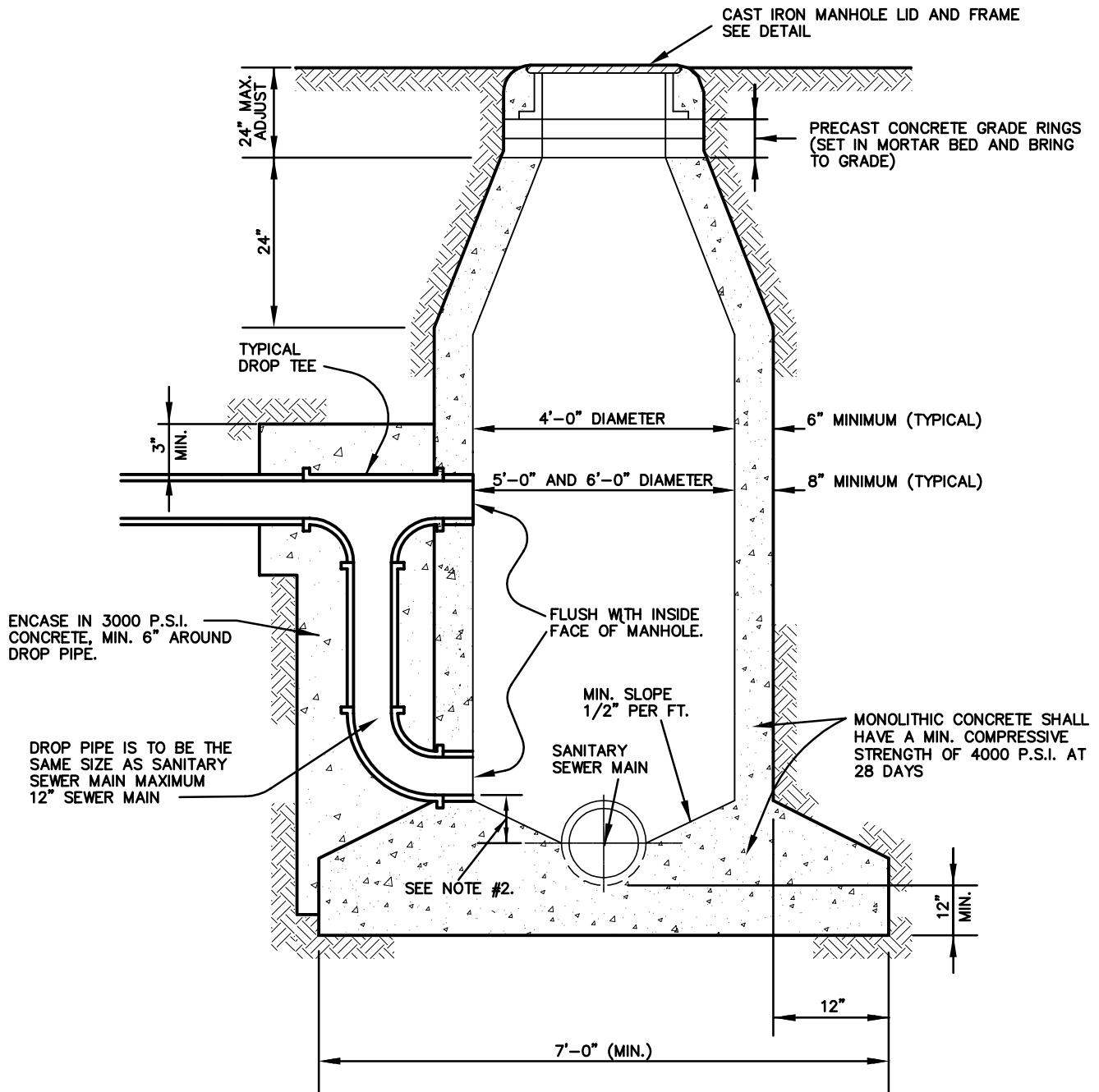
**CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS**



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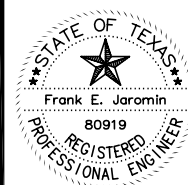
SHEET NO. : S05



NOTES:

1. THE DIAMETER OF A MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER SHOULD VARY WITH THE SIZE OF THE SEWER. FOR EIGHT-INCH (8"), TEN-INCH (10"), AND TWELVE-INCH (12"), THE MANHOLE SHALL BE FOUR-FOOT (4') MINIMUM DIAMETER, FOR FIFTEEN-INCH (15"), EIGHTEEN-INCH (18"), TWENTY-ONE-INCH (21"), TWENTY-FOUR-INCH (24") AND TWENTY-SEVEN-INCH (27") SHALL BE FIVE-FOOT (5') MINIMUM DIAMETER; THIRTY-INCH (30") AND THIRTY-SIX-INCH (36") SHALL BE SIX-FOOT (6') MINIMUM DIAMETER. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.
2. FLOWLINE OF DROP SHALL BE LOCATED BETWEEN THE CENTERLINE AND TOP OF SEWER MAIN.
3. WHERE PIPES ENTER A MANHOLE THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
5. CONCRETE SHALL BE A MONOLITHIC POUR.

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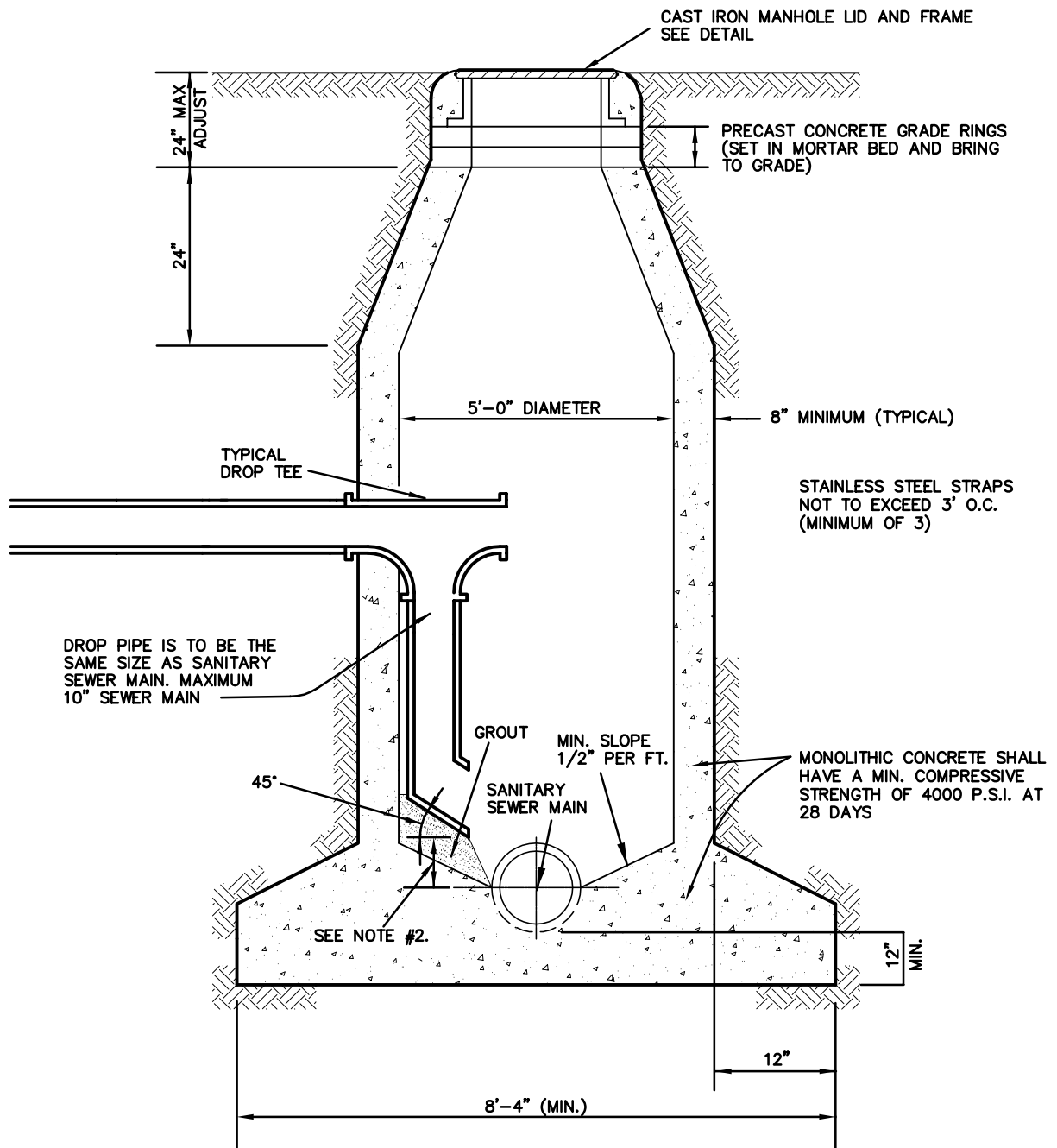


MANHOLE DROP CONNECTION

CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS

DATE: 08/08/02
DRAWN BY: HTW
APPROVED BY: FEJ

SHEET NO. : S06



NOTES:

1. THE DIAMETER OF AN INSIDE DROP MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER FOR EIGHT-INCH (8") AND TEN-INCH (10") MAINS SHALL BE FIVE-FOOT (5').
2. FLOWLINE OF DROP SHALL BE LOCATED BETWEEN THE CENTERLINE AND TOP OF SEWER MAIN.
3. WHERE PIPES ENTER A MANHOLE THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
5. CONCRETE SHALL BE A MONOLITHIC POUR.

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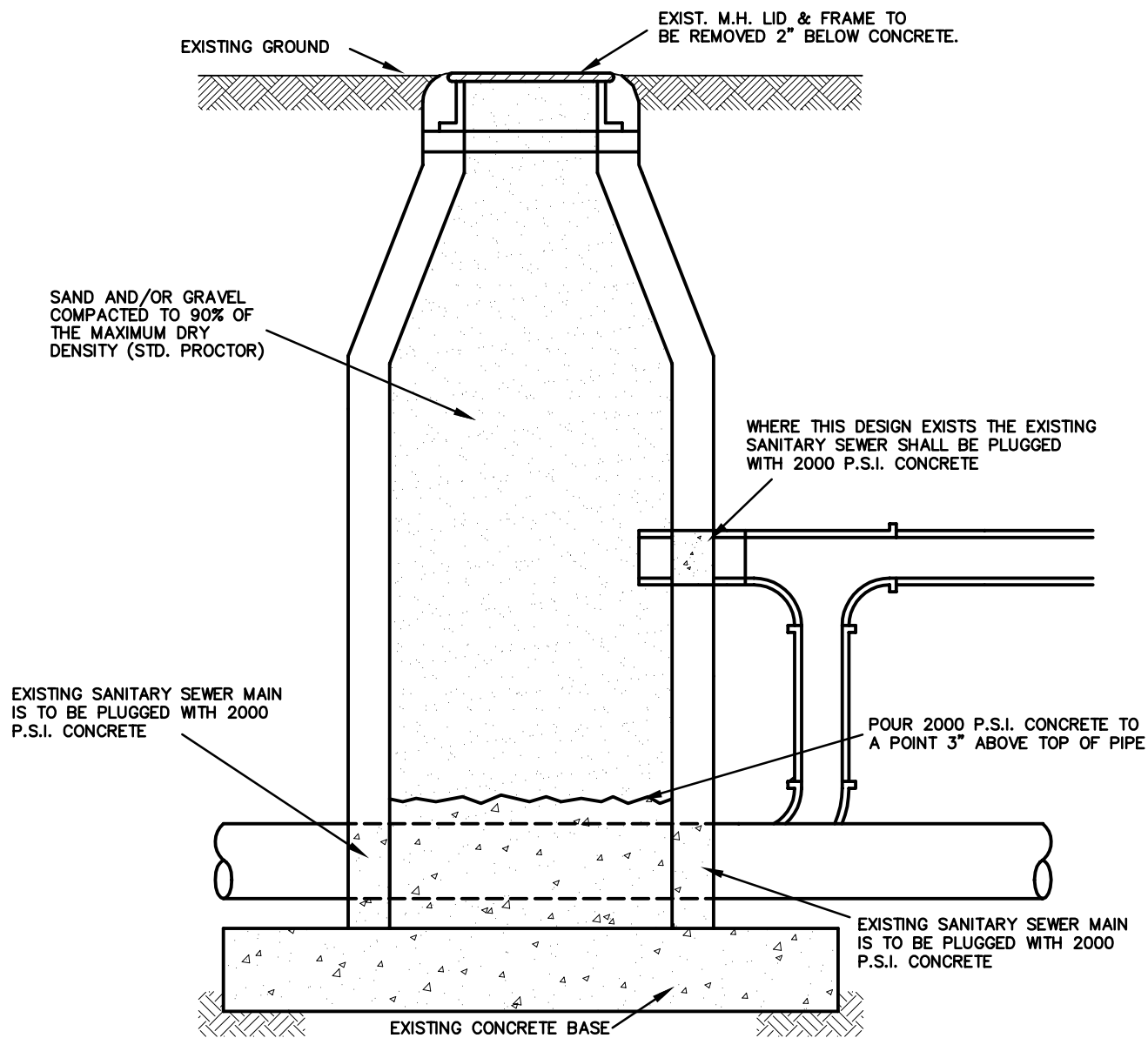


MANHOLE INSIDE DROP CONNECTION

CITY OF FRISCO, TEXAS
**STANDARD CONSTRUCTION
DETAILS**

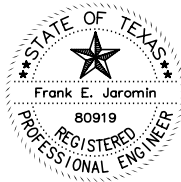
DATE: 07/11/03
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APPROVED BY: FEJ

SHEET NO. : S07



MANHOLE ABANDONMENT

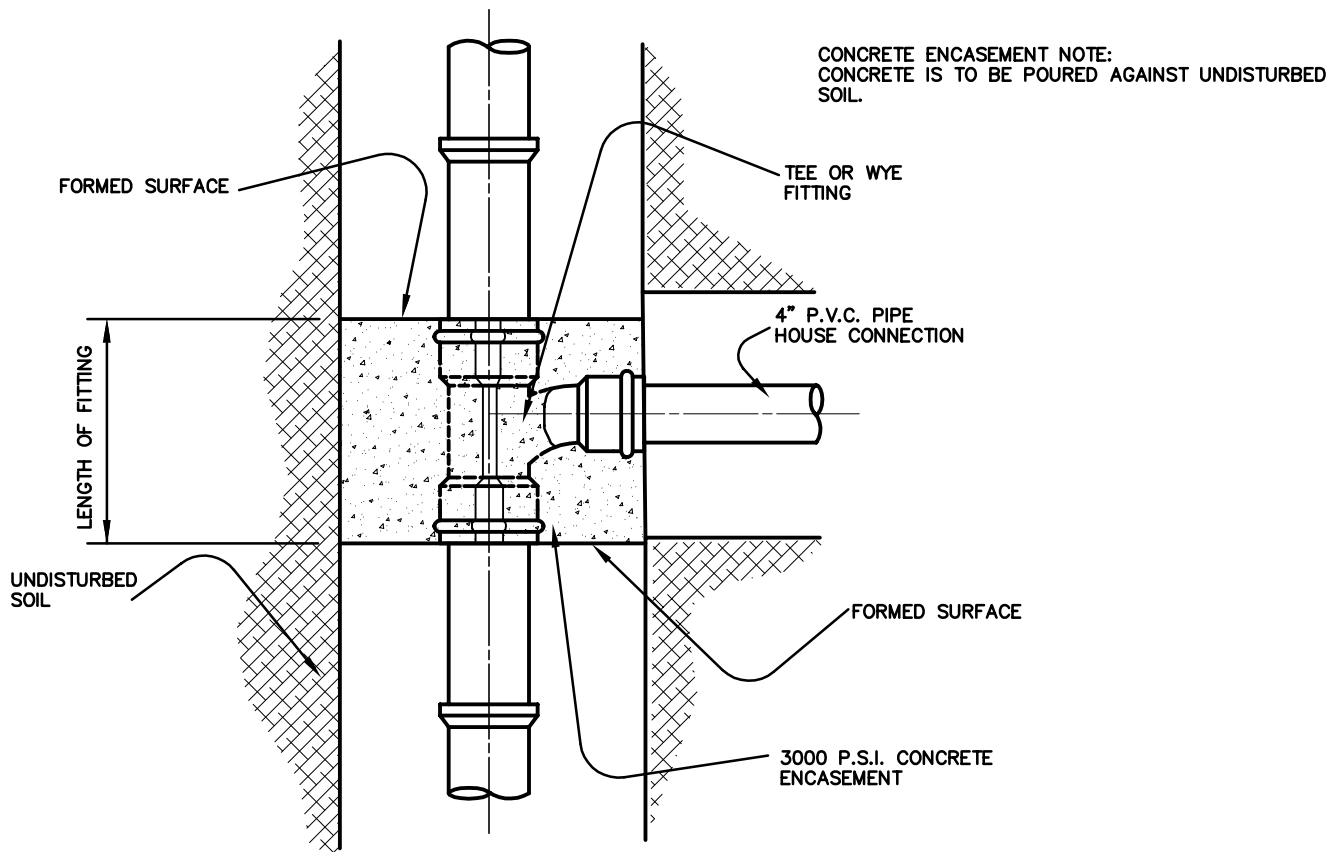
CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



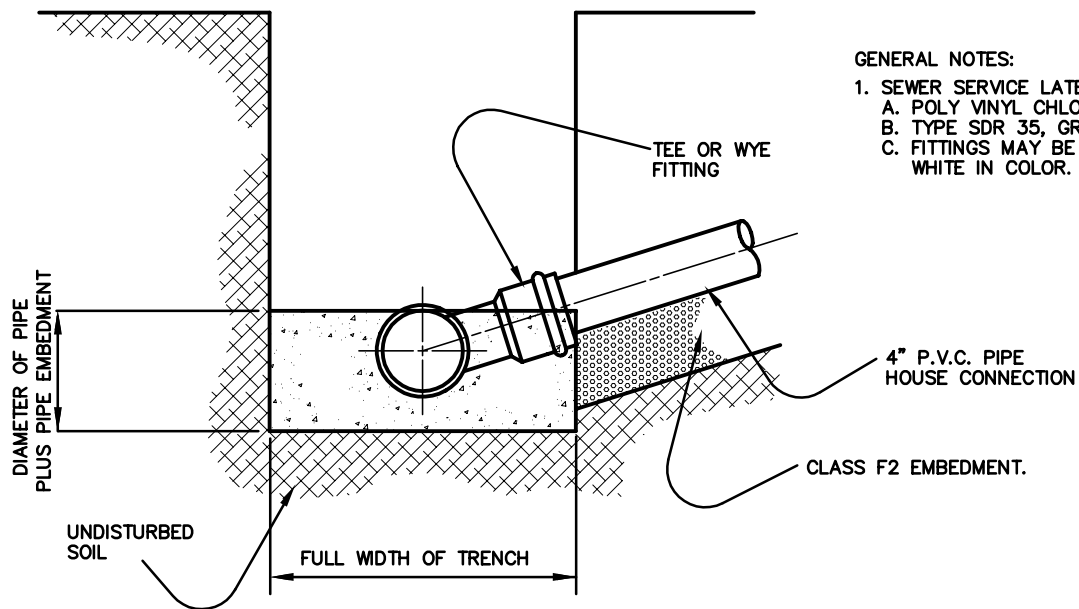
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SHEET NO. : S08



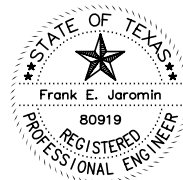
PLAN VIEW



SECTION THRU TRENCH

RESIDENTIAL SANITARY SERVICE CONNECTION

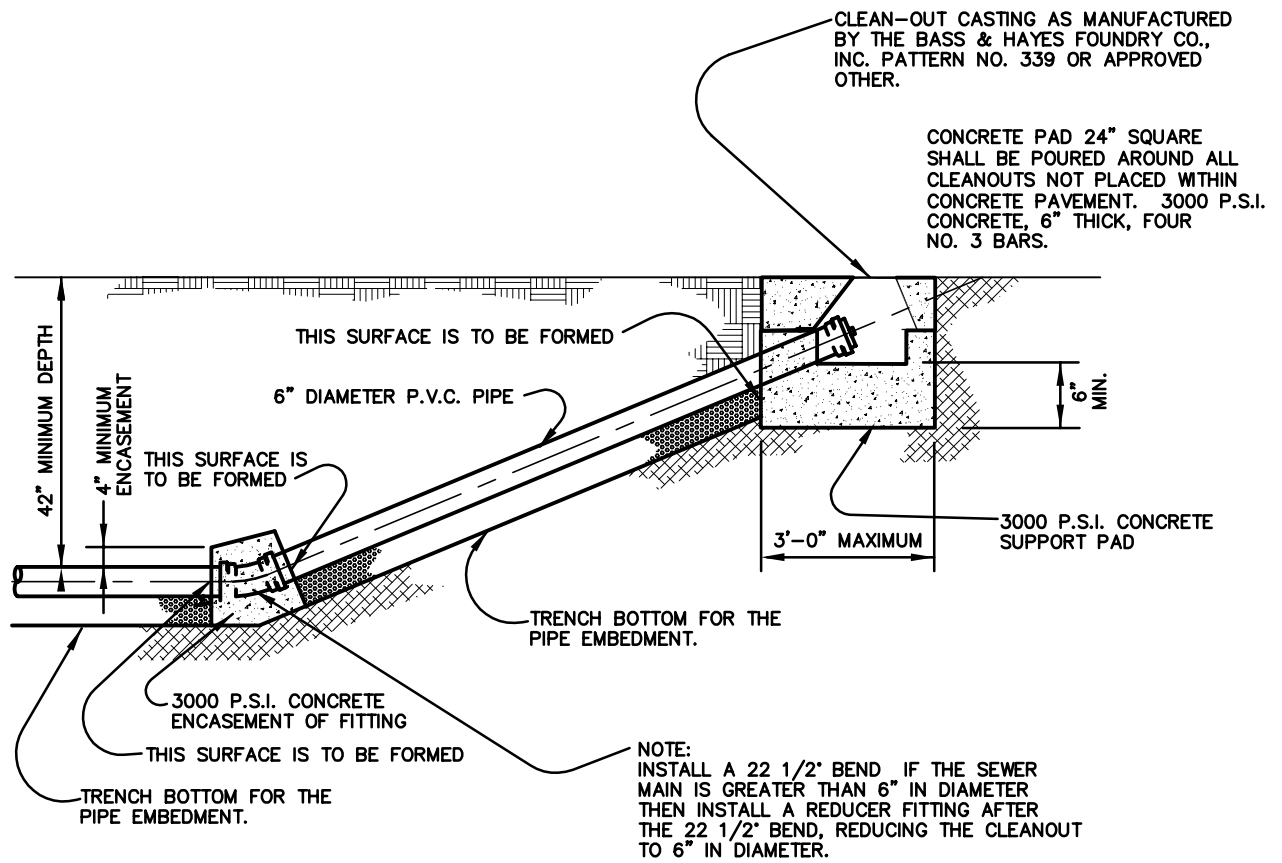
CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



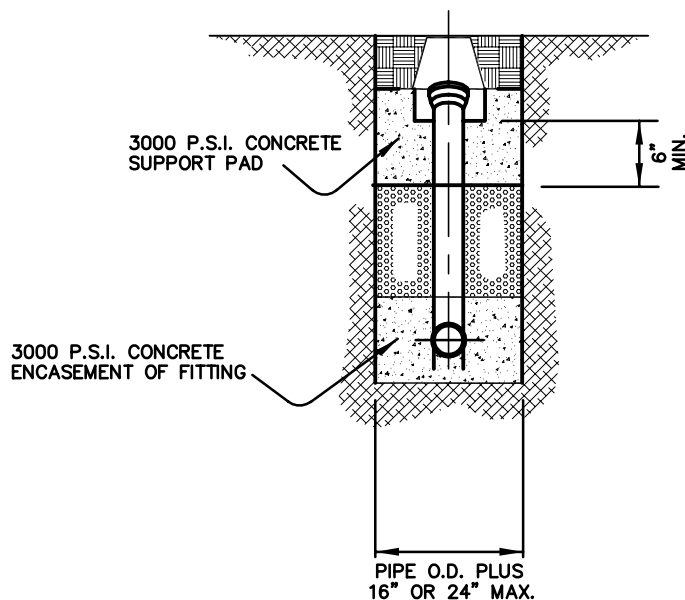
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DATE: 07/23/02
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SHEET NO. : S09




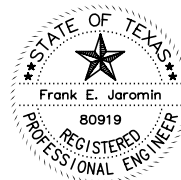
SECTIONAL ELEVATION



CROSS SECTION

SANITARY SEWER MAIN CLEANOUT

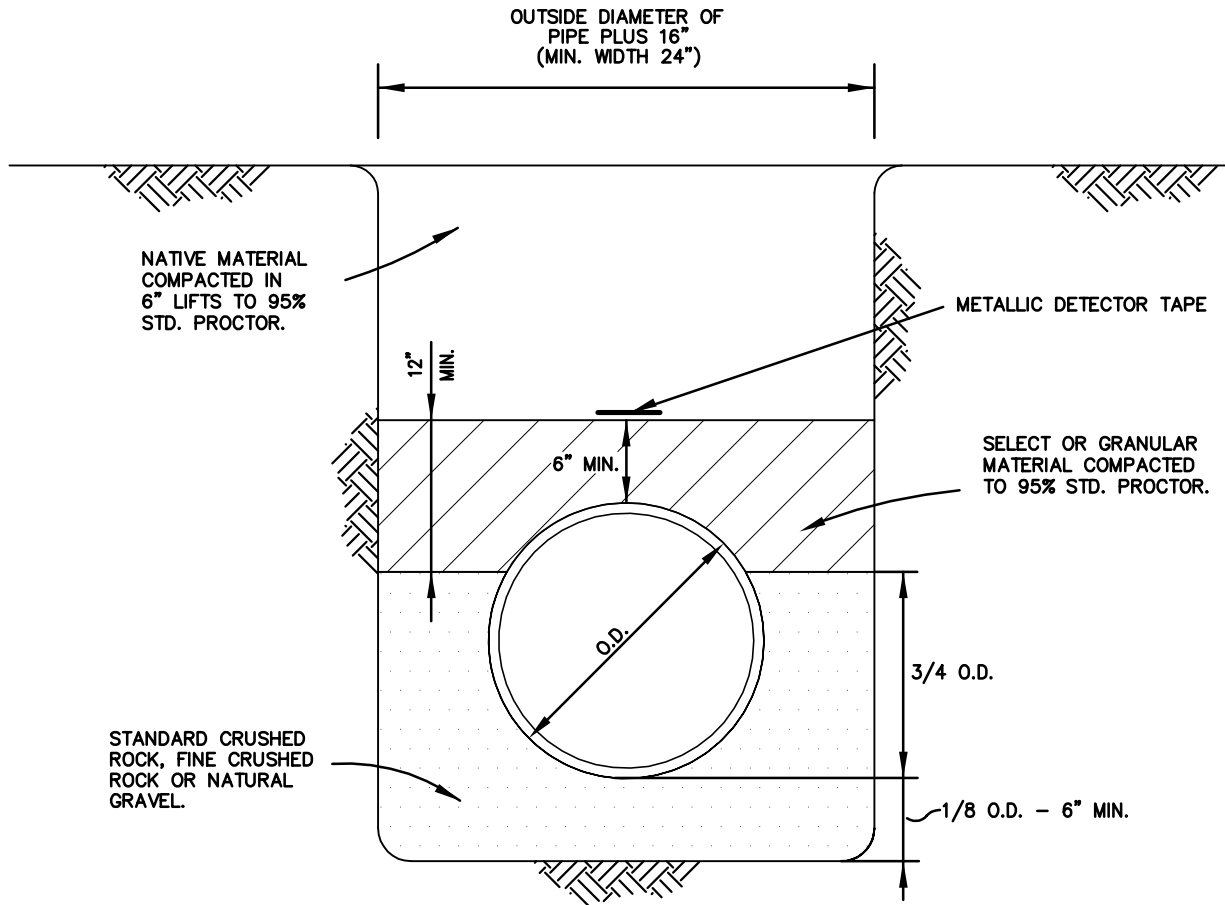
 CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



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DATE: 08/23/02
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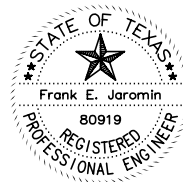
SHEET NO. : S10



MIN. STD. P.V.C. SEWER
NTS

CLASS F2 EMBEDMENT

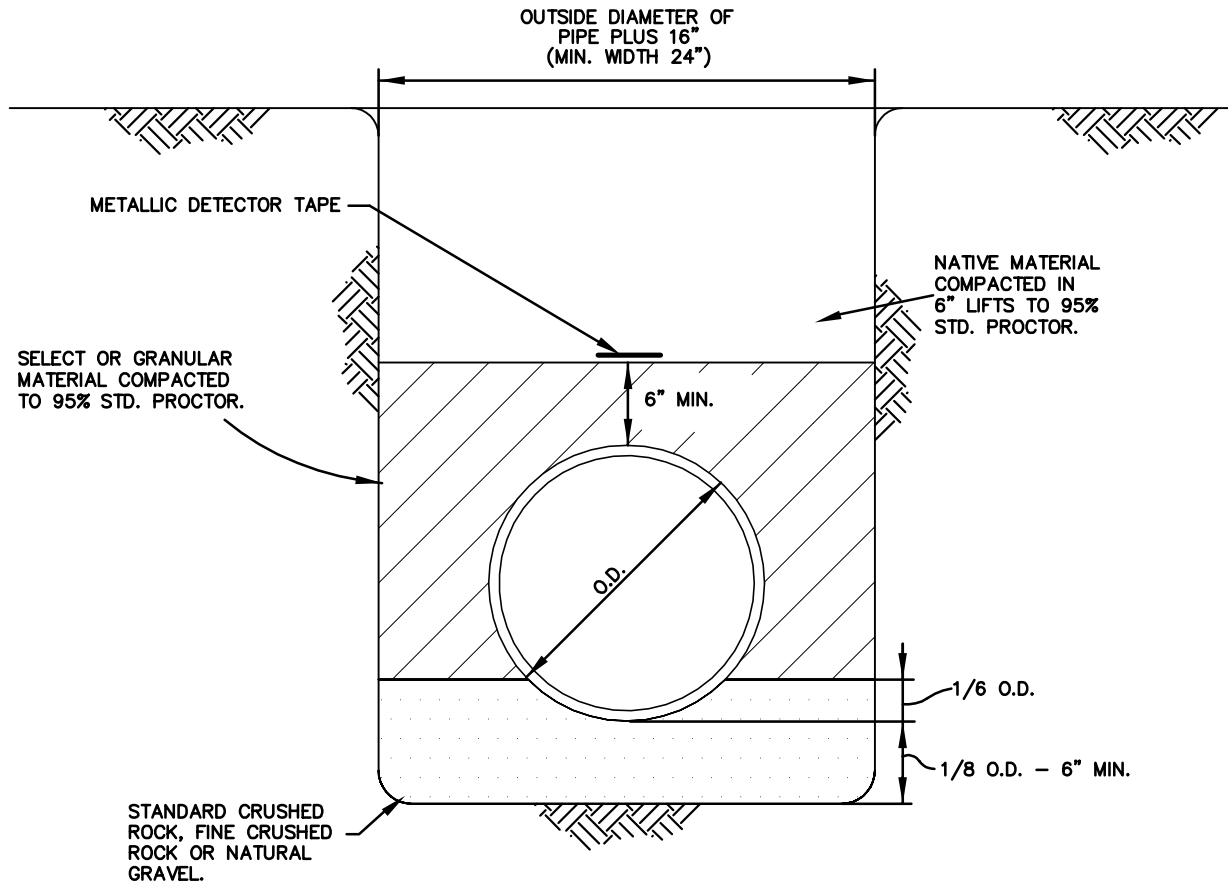
CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



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DATE: 08/29/02
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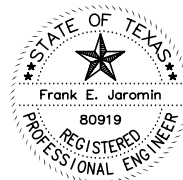
SHEET NO. : S11



MIN. STD. DUCTILE IRON SEWER
NTS

CLASS F3 EMBEDMENT

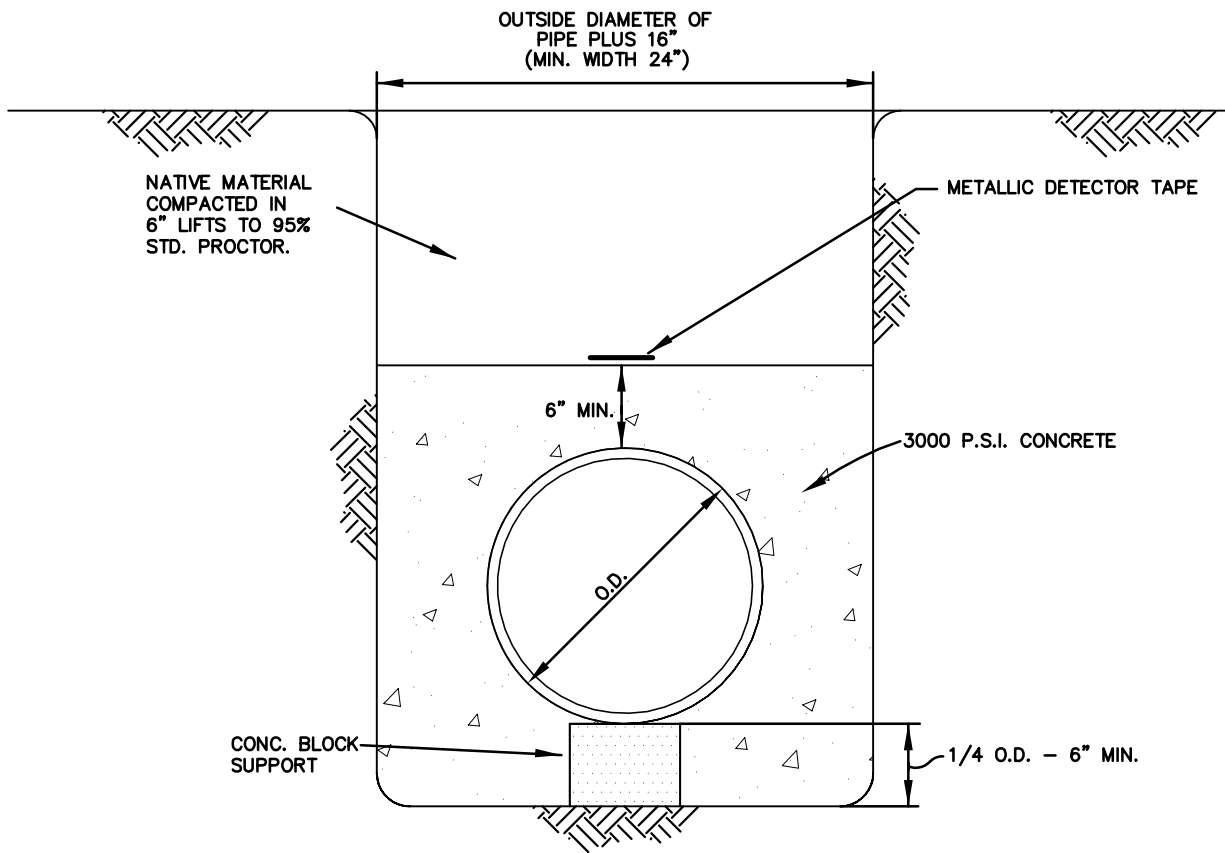
CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



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DATE: 08/29/02
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SHEET NO. : S12



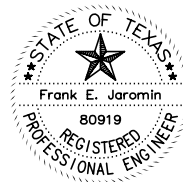
CONCRETE ENCASEMENT

NTS

CLASS F4 EMBEDMENT

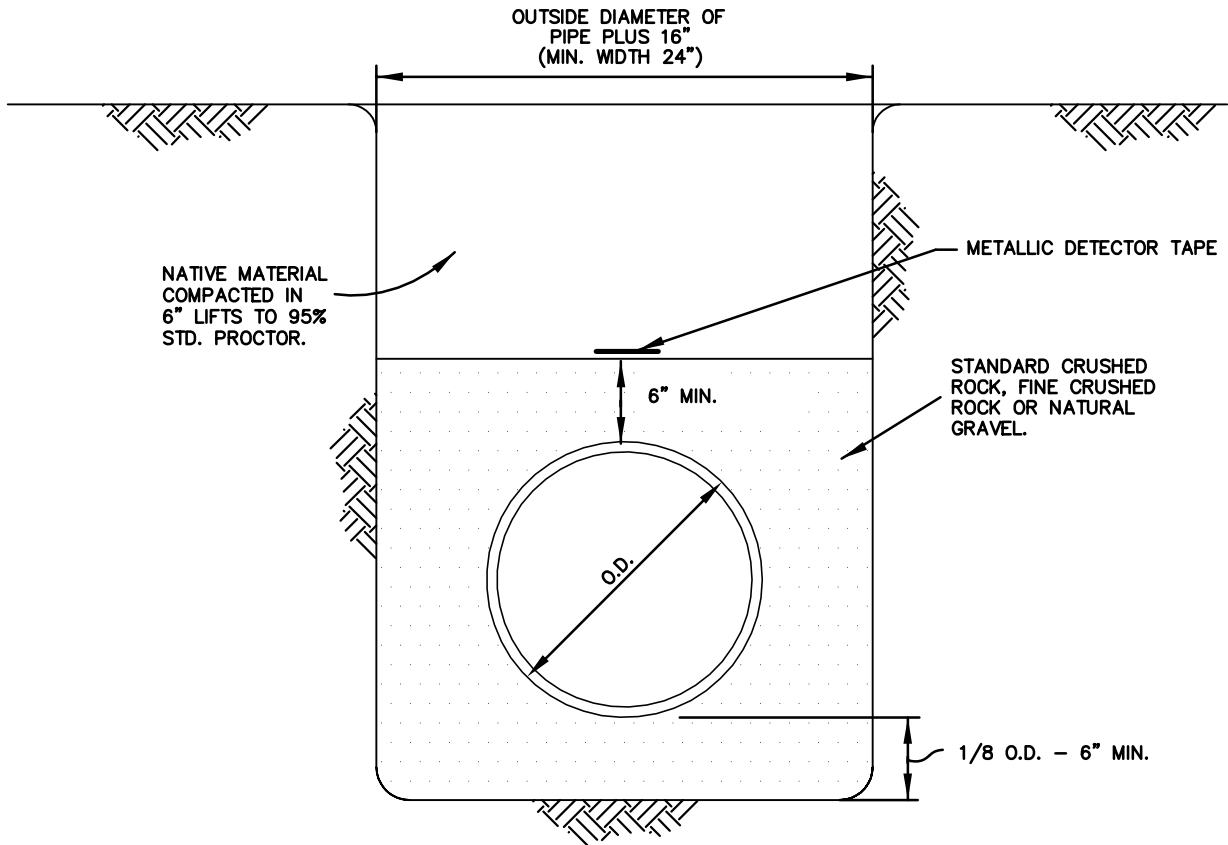
 CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS

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DATE: 08/27/02
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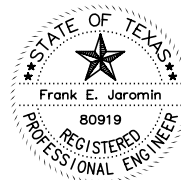
SHEET NO. : S13



DEEP SDR 35 ENCASEMENT
NTS

CLASS F5 EMBEDMENT

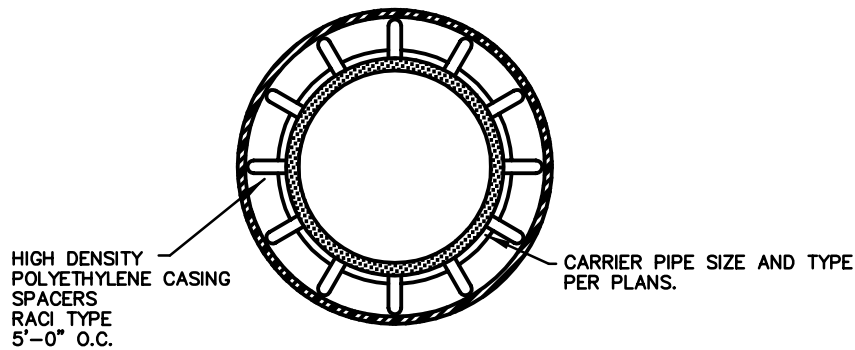
CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS



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DATE: 08/29/02
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APPROVED BY: FEJ

SHEET NO. : S14



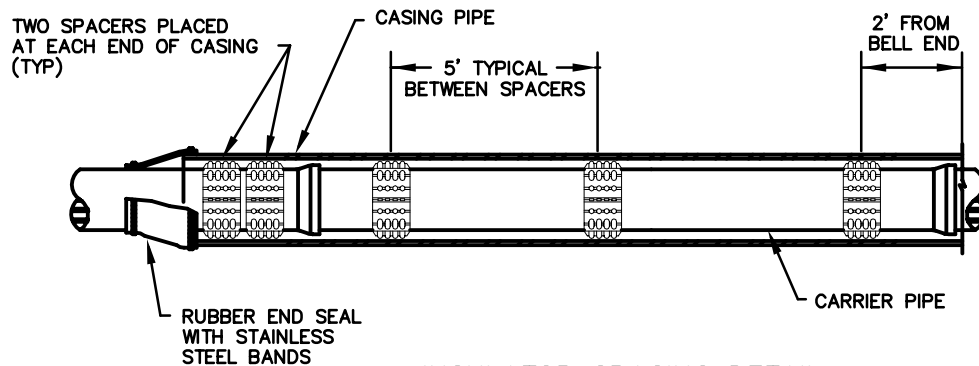
CASING SPACERS SHALL BE USED TO INSTALL CARRIER PIPE INSIDE THE ENCASEMENT PIPE. TO PROVIDE SUPPORT AROUND THE PERIPHERY OF THE PIPE SHOULD THE PIPE TWIST AS IT IS PUSHED THROUGH THE CASING, THE SPACERS SHALL BE OF A PROJECTION TYPE THAT HAS A MINIMUM NUMBER OF PROJECTIONS AROUND THE CIRCUMFERENCE TOTALLING THE NUMBER OF DIAMETER INCHES. FOR EXAMPLE, 8" PIPE SHALL HAVE A MINIMUM OF 8 PROJECTIONS AND 18" PIPE SHALL HAVE A MINIMUM NUMBER OF 18 PROJECTIONS.

CASING SPACERS SHALL HAVE A MAXIMUM SPACING SPAN OF 5 FEET. THE SPAN BETWEEN SPACERS SHOULD RESULT IN CONSERVATIVE LONG TERM SAFETY FACTOR PROVIDED TOTAL LOAD PER SPACER DOES NOT EXCEED THE MAXIMUM LOAD FOR PIPE FULL OF LIQUID PER SPACER LISTED IN THE LITERATURE FOR CLASS SPACER USED. SPACERS SHALL HAVE A MINIMUM HEIGHT THAT CLEARS THE PIPE BELL OR AS OTHERWISE INDICATED ON PLANS. CASING SPACERS SHALL USE DOUBLE BACKED TAPE PROVIDED WITH THE SPACERS, TO FASTEN TIGHTLY ONTO THE CARRIER PIPE, SO THAT THE SPACERS DO NOT MOVE DURING INSTALLATION.

PIPE INSULATOR DETAIL

NTS


SPACERS SHALL BE RACI HIGH DENSITY POLYETHYLENE OR CITY APPROVED OTHER.



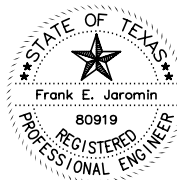
INSULATOR SPACING DETAIL

NTS

CASING

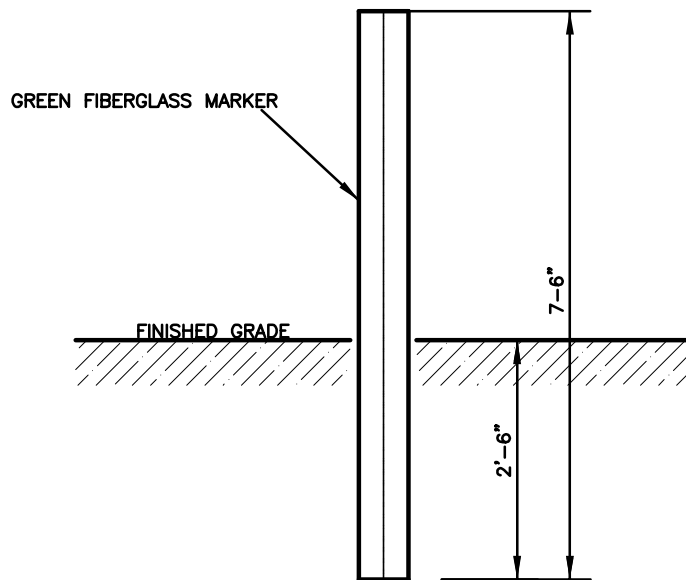
 CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS

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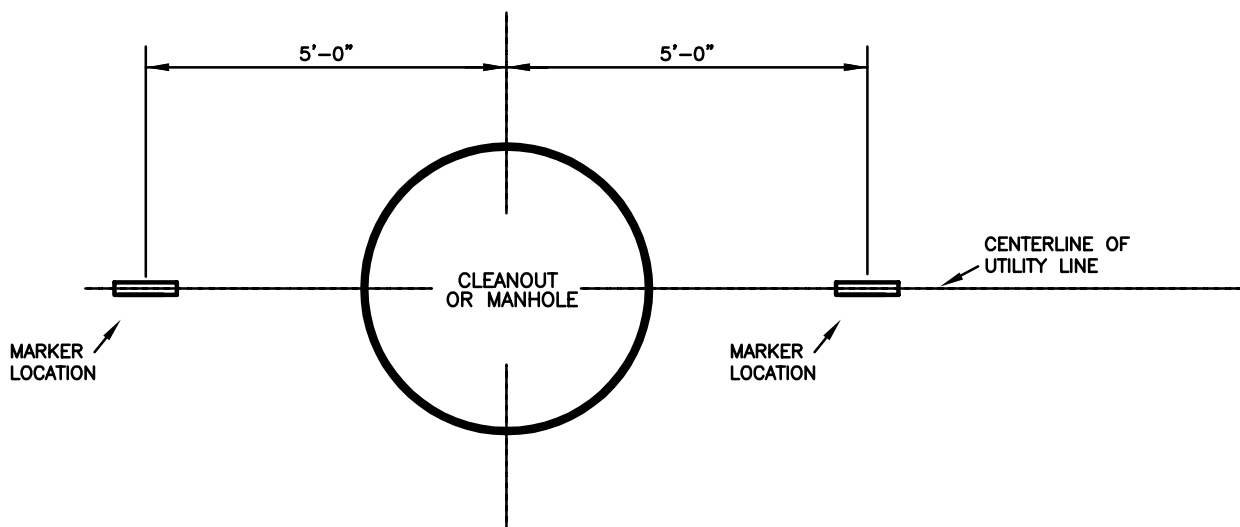


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SHEET NO. : S15



ELEVATION

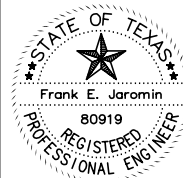


FIELD INSTALLATION DETAIL


GENERAL NOTES

1. ALL OFFSITE CITY OF FRISCO MAINS WITH CLEANOUTS AND MANHOLES SHALL BE MARKED AS DETAILED ON THIS SHEET.

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OFFSITE SANITARY
SEWER MARKER

 CITY OF FRISCO, TEXAS
STANDARD CONSTRUCTION
DETAILS

DATE: 07/23/02
DRAWN BY: HTW
APPROVED BY: FEJ

SHEET NO. : S16